DEPARTMENT OF THE NAVY
Southwest Regional Maintenance Center

3755 Brisner St. Suite 4

SAN DIEGO, CALIFORNIA 92136-5205

ASSAULT CRAFT UNIT ONE (ACU-1)

SPECIFICATIONS FOR WORK TO BE ACCOMPLISHED

SPECIFICATION NUMBER: SSP:SSSD-081-08

SHIP CHARACTERISTICS

LENGTH OVERALL		0 FEET 0 INCHES
MAX. BEAM AT DESIGN WATERLINE		0 FEET 0 INCHES
EXTREME BEAM INCLUDING APPENDAGES		0 FEET 0 INCHES
DRAFT (MAX. NAVIGABLE)	(FWD.)	0 FEET 0 INCHES
DRAFT (MAX. NAVIGABLE)	(AFT.)	0 FEET 0 INCHES
LIGHT DISPLACEMENT		0 LONG TON
FULL LOAD DISPLACEMENT		0 LONG TON
HEIGHT OF MAST ABOVE DESIGN WATERLINE		0 FEET 0 INCHES

DETROIT DIESEL REPAIR

NO CS DATE

DATE PREPARED

I N D E X

ITEMS THAT ARE STRUCK OUT ON THIS INDEX DO NOT APPLY TO THIS CONTRACT.

CATEGORY I. FY-09 STANDARD ITEMS APPLICABLE TO THIS JOB ORDER WITHOUT FURTHER REFERENCE

I N D E X

I N D E X

I N D E X

CATEGORY II. FY-09 STANDARD ITEMS WHICH MAY BE INVOKED IN THE WORK ITEMS OF THIS JOB ORDER

I N D E X

I N D E X

I N D E X

SHIP:	ASSAULT CRAFT UNIT ONE (ACU-1)	ITEM NO:	231-00-001
COAR:	28-081	PCN:	SSSD-0116
		CMP:	NONE
		PLANNER:	KELLY

1. SCOPE:

1.1 Title: Propulsion Diesel Engine Parts; provide

1.2 Location of Work:

1.2.1 Not applicable

1.3 Identification:

1.3.1 Diesel Engine, Mfr.: Detroit Diesel-Allison of GMC, Mfr.: ID: 12V-71, Advanced Time, N-70 Injection

1.3.2 Diesel Engine, Mfr.: Detroit Diesel-Allison of GMC, Mfr.: ID: 8V-71 TI

1.3.3 Diesel Engine, Mfr.: Detroit Diesel-Allison of GMC, Mfr.: ID: 4-71 Inline

1.3.4 Diesel Engine, Mfr.: Detroit Diesel-Allison of GMC, Mfr.: ID: 3-71 Inline

2. REFERENCES:

2.1 Standard Items

3. REQUIREMENTS:

3.1 Accomplish the following when directed by the SUPERVISOR for each equipment identified in 1.3.

3.1.1 Provide the following new or refurbished OEM parts for equipment identified in 1.3.1;

3.1.1.1 One each engine block.

3.1.1.2 One each engine head.

3.1.1.3 One each engine cam shaft.

3.1.1.4 One each engine crank shaft.

3.1.2 Provide the following new or refurbished OEM parts for equipment identified in 1.3.2;

3.1.2.1 One each engine block.

3.1.2.2 One each engine head.

3.1.2.3 One each engine cam shaft.

3.1.2.4 One each engine crank shaft.

3.1.3 Provide the following new or refurbished OEM parts for equipment identified in 1.3.3;

3.1.3.1 One each engine block.

3.1.3.2 One each engine head.

3.1.3.3 One each engine cam shaft.

3.1.3.4 One each engine crank shaft.

3.1.4 Provide the following new or refurbished OEM parts for equipment identified in 1.3.4;

3.1.4.1 One each engine block.

3.1.4.2 One each engine head.

3.1.4.3 One each engine cam shaft.

3.1.4.4 One each engine crank shaft.

4. NOTES:

4.1 None.

5. GOVERNMENT FURNISHED MATERIAL(GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

SHIP: ASSAULT CRAFT UNIT ONE (ACU-1)

1. None.

ITEM NO: 231-00-001

SHIP:	ASSAULT CRAFT UNIT ONE (ACU-1)	ITEM NO:	233-11-001
COAR:	28-081	PCN:	SSSD-0109
		CMP:	NONE
		PLANNER:	KELLY

1. SCOPE:

1.1 Title: 12V-71 Main Propulsion Diesel Engine; overhaul

1.2 Location of Work:

1.2.1 Not Applicable

1.3 Identification:

1.3.1 Quantity (One), Diesel Engine, Model 12V-71 (71227001), Detroit Diesel Corporation, APL 666010154 (Advanced Timed)(N70 Fuel Injectors)(4 Valve Head)

2. REFERENCES:

2.1 Standard Items

2.2 Detroit Diesel V-71 Service Manual

2.3 S9AA0-AB-GOS-010/GSO, General Specifications for Overhaul of Surface Ships.

2.4 SUPSHIP San Diego Reference 276; Cleaning Procedures dated 18 April 1988

2.5 GM Diesel Parts Book for V-71 Engines

2.6 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.7 MIL-STD-2035; Non-Destructive Testing Acceptance Criteria

2.8 S9086-HB-STM-000/CH-233; NSTM, Diesel Engines

2.9 S6430-AE-TED-010, Technical Directive for Piping Devices, Flexible Hose Assemblies

3. REQUIREMENTS:

3.1 Pick up each equipment identified in 1.3.1.

3.1.1 Remove and dispose of fluids to accomplish requirements of this work item.

3.2 Disassemble each equipment identified in 1.3.1, in accordance with 2.2.

3.2.1 Submit one legible copy, in hard copy or electronic media, within 48 hours after removal of equipment of a report listing missing parts including part number, price and, availability required for a class "B" overhaul of equipment identified in 1.3.1 to the SUPERVISOR using 2.2 for guidance.

3.3 Chemically and mechanically clean each part free of contamination, using 2.4 for guidance.

3.4 Inspect each part for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.5 Measure and record sizes and clearances of each wearing part and fit area, using 2.2 for guidance.

3.6 Submit one legible copy, in hard copy or electronic media of a report, listing results of the requirements of 3.4 and 3.5 to the SUPERVISOR.

3.7 Accomplish class "B" overhaul as defined in Paragraph 042c of 2.3 for each engine identified in paragraph 1.3.1 using 2.2 for guidance.

3.7.1 Machine cut and handwork each machined, sealing, aligning, mating and gasket surface, taking precaution to ensure no excessive material is removed causing loss of critical size or alignment.

3.7.2 Chase and tap exposed threaded areas.

3.7.3 Repair each cylinder block using 2.2 for guidance.

(I)(G) "PRESSURE TEST"

3.7.3.1 Pressure test each cylinder block at 40 PSIG, using 2.2 for guidance.

3.7.3.2 Hone each cylinder block bore using 2.2 for guidance.

3.7.3.3 Install each cylinder block end plate, fit and install new each gasket and fastener using 2.2 for guidance.

3.7.4 Repair each cylinder head using 2.2 for guidance.

(I)(G) "PRESSURE TEST"

3.7.4.1 Pressure Test each cylinder head at 40 PSIG using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.4.2 Remove existing install new each "J" type exhaust valve, spring and gasket using 2.2 and 2.5 for guidance.

3.7.4.3 Install new each threaded fastener, gasket, O-ring, oil seal, pipe plug, washer and fuel pipe.

3.7.5 Repair each crankshaft using 2.2 for guidance.

(I)(G) "MAGNETIC PARTICLE TEST "

3.7.5.1 Accomplish magnetic particle tests on each crankshaft using 2.6 for guidance. The accept or reject criteria shall be in accordance with Section 6 of 2.7.

3.7.5.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.5.1 to the SUPERVISOR.

3.7.5.3 Inspect each crankshaft for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.5.4 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.5.3 to the SUPERVISOR.

3.7.6 Inspect each connecting rod for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.6.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.6 to the SUPERVISOR.

3.7.7 Repair each blower using 2.2 for guidance.

3.7.7.1 Repair scratches, grooves, nicks, burrs and pits.

(I)(G) "BALANCE"

3.7.7.2 Accomplish the requirements of 009-15 of 2.1 for each rotating assembly.

3.7.7.3 Install new each gasket and threaded fastener.

3.7.7.4 Submit one legible copy, in hard copy or electronic media, of each final clearance reading using 2.2 through 2.6 for guidance to the SUPERVISOR.

3.7.8 Disassemble each lubricating oil cooler, using 2.2 for guidance.

3.7.8.1 Chemically and mechanically clean each lube oil cooler

in accordance with Chapters 4, 5, and 18 of 2.4.

(I)(G) "HYDROSTATIC TEST"

3.7.8.2 Hydrostatically test each lube oil cooler at 75 PSIG in accordance with Section 4.4 of 2.2.

3.7.8.3 Repair 10 leaks in each lube oil cooler.

3.7.9 Assemble each lube oil cooler, fit and install new fasteners, gaskets, plugs, washers and lockwashers using 2.2 for guidance.

(I)(G) "HYDROSTATIC TEST"

3.7.9.1 Hydrostatically test each lube oil cooler using clean fresh water at 75 PSIG for a minimum of 10 minutes. Allowable leakage: None.

3.7.10 Disassemble each fresh water heat exchanger, using 2.2 for guidance.

3.7.10.1 Chemically and mechanically clean each fresh water heat exchanger in accordance with Chapters 4, 5, and 18 of 2.4.

(I)(G) "HYDROSTATIC TEST"

3.7.10.2 Hydrostatically test each fresh water heat exchanger using clean fresh water at 5 PSIG for a minimum of 10 minutes. Allowable leakage: None.

3.7.10.3 Repair 4 each leaking tubes by soldering both ends of the tube closed.

(I)(G) "HYDROSTATIC TEST"

3.7.10.4 Hydrostatically test each freshwater heat exchanger using clean fresh water at 5 PSIG for a minimum of 10 minutes. Allowable leakage: None.

(I)(G) "NEW PARTS"

3.7.11 Assemble each fresh water heat exchanger, fit and install new each fastener, gasket, seal and plug, using 2.2 and 2.5 for guidance.

3.7.12 Deliver each governor to a qualified governor repair facility.

3.7.12.1 Repair, set, adjust and calibrate each governor using 2.2 for guidance.

3.7.13 Repair each fuel oil pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.13.1 Fit and install new each fastener, gasket, seal,

spring, pin bushing and plug using 2.2 and 2.5 for guidance.

3.7.14 Repair each lube oil pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.14.1 Fit and install new each gasket, seal, key, pin, washer and fastener.

3.7.15 Repair each fresh water pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.15.1 Assemble each fresh water pump, fit and install new each fastener, seal, gasket, slinger, O-ring and bearing using 2.2 and 2.5 for guidance.

(I)(G) "NEW PARTS"

3.8 Assemble each diesel engine and repaired engine component. Fit, and install new the following Original Equipment Manufacturer parts in each equipment listed in 1.3 using 2.2 and 2.5 for guidance:

TOTAL QUANTITY REQUIRED PER UNIT	NAME OF PART
One	Gasket Kit
One	Seal Crankshaft, Front
One	Slinger
One	Seal Crankshaft, Rear
14	Main Bearing Shell Set
4	Thrust Washer
12	Connect Rod Bearing
12	Shell Set
12	Piston Ring Set
12	Liner Cylinder
12	Insert Cylinder Liner
12	Camshaft Bearing
4	Thrust Washer
14	Bearing Set, Camshaft
One	Air Pressure Regulator
One	Oil Pressure Regulator

3.8.1 Fit and install new each fastener, plug, washer, lockwasher, seal, dowel, pin, key, retainer ring, spacer, spring, O-ring, clamp, shim, bushing, lube oil filter element, air filter element, and fuel oil filter element conforming to the Material List of 2.5.

3.8.1.1 Submit one legible copy, in hard copy or electronic media, of certification that each Fuel Injector Assembly meets manufacturer's calibration and performance standards to the SUPERVISOR.

(I)(G) "HYDROSTATIC TEST"

3.9 Hydrostatically test each engine fresh water system using clean fresh water at 10 PSIG using clean fresh water for a minimum of 30 minutes. Allowable leakage: None.

3.10 Accomplish crankshaft pulley end play and crankshaft distortion measurements using 2.2 for guidance.

3.10.1 Submit one legible copy, in hard copy or electronic media, of requirments of 3.10 to the SUPERVISOR.

3.11 Accomplish blower readings for each blower; rotor to end plate (gear end), rotor to end plate, leading edge of RH rotor to trailing edge of LH rotor, trailing edge of RH rotor to trailing edge of LH rotor and rotors to case inlet side.

3.11.1 Submit one legible copy, in hard copy or electronic media, of requirments of 3.11 to the SUPERVISOR.

3.12 Fill each engine to the full mark with new lube oil conforming Mil-L-9000, symbol 9250.

(I)(G) "DYNAMOMETER TEST"

3.13 Accomplish Dynamometer Test for each engine listed in 1.3.1 using 2.2 for guidance.

3.13.1 Perform start up and Main Propulsion Run in Schedule using 2.8 for guidance.

3.13.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12 and 3.12.1 to the SUPERVISOR.

3.13.1.2 Securely attach a report with the following information in a waterproof envelope; command, manufacturer’s model number, manufacturer’s serial number, date of rebuild and date of delivery, size of piston and liner installed by cylinder and one each hard copy of required reports 3.10.1, 3.11.1 and 3.12.1.1.

3.14 Fill each engine to the full mark with new lube oil conforming to Mil-L-9000, symbol 9250.

3.15 Install new each cooling water, fuel and hydraulic hose using 2.2 and 2.9 for guidance.

3.16 Accomplish the requirements of 009-32 of 2.1 for each engine.

3.17 Deliver each engine disassembled in paragraph 3.2 via the SUPERVISOR.

SHIP: ASSAULT CRAFT UNIT ONE (ACU-1)

4. NOTES:

4.1 None

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	ASSAULT CRAFT UNIT ONE (ACU-1)	ITEM NO:	233-11-002
COAR:	28-081	PCN:	SSSD-0110
		CMP:	NONE
		PLANNER:	KELLY

1. SCOPE:

1.1 Title: 8V-71TI Main Propulsion Diesel Engine; overhaul

1.2 Location of Work:

1.2.1 Not Applicable

1.3 Identification:

1.3.1 Quantity (One), Diesel Engine, Model 8V-71TI, Detroit Diesel Corporation

2. REFERENCES:

2.1 Standard Items

2.2 Detroit Diesel V-71 Service Manual

2.3 S9AA0-AB-GOS-010/GSO, General Specifications for Overhaul of Surface Ships.

2.4 SUPSHIP San Diego Reference 276; Cleaning Procedures dated 18 April 1988

2.5 GM Diesel Parts Book for V-71 Engines

2.6 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.7 MIL-STD-2035; Non-Destructive Testing Acceptance Criteria

2.8 S9086-HB-STM-000/CH-233; NSTM, Diesel Engines

2.9 S6430-AE-TED-010, Technical Directive for Piping Devices, Flexible Hose Assemblies

3. REQUIREMENTS:

3.1 Pick up each equipment identified in 1.3.1.

3.1.1 Remove and dispose of fluids to accomplish requirements of this

work item.

3.2 Disassemble each equipment identified in 1.3.1, in accordance with 2.2.

3.2.1 Submit one legible copy, in hard copy or electronic media, within 48 hours after removal of equipment of a report listing missing parts including part number, price and, availability required for a class "B" overhaul of equipment identified in 1.3.1 to the SUPERVISOR using 2.2 for guidance.

3.3 Chemically and mechanically clean each part free of contamination, using 2.4 for guidance.

3.4 Inspect each part for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.5 Measure and record sizes and clearances of each wearing part and fit area, using 2.2 for guidance.

3.6 Submit one legible copy, in hard copy or electronic media of a report, listing results of the requirements of 3.4 and 3.5 to the SUPERVISOR.

3.7 Accomplish class "B" overhaul as defined in Paragraph 042c of 2.3 for each engine identified in paragraph 1.3.1 using 2.2 for guidance.

3.7.1 Machine cut and handwork each machined, sealing, aligning, mating and gasket surface, taking precaution to ensure no excessive material is removed causing loss of critical size or alignment.

3.7.2 Chase and tap exposed threaded areas.

3.7.3 Repair each cylinder block using 2.2 for guidance.

(I)(G) "PRESSURE TEST"

3.7.3.1 Pressure test each cylinder block at 40 PSIG, using 2.2 for guidance.

3.7.3.2 Hone each cylinder block bore using 2.2 for guidance.

3.7.3.3 Install each cylinder block end plate, fit and install new each gasket and fastener using 2.2 for guidance.

3.7.4 Repair each cylinder head using 2.2 for guidance.

(I)(G) "PRESSURE TEST"

3.7.4.1 Pressure Test each cylinder head at 40 PSIG using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.4.2 Remove existing install new each "J" type exhaust valve, spring and gasket using 2.2 and 2.5 for guidance.

3.7.4.3 Install new each threaded fastener, gasket, O-ring, oil seal, pipe plug, washer and fuel pipe.

3.7.5 Repair each crankshaft using 2.2 for guidance.

(I)(G) "MAGNETIC PARTICLE TEST "

3.7.5.1 Accomplish magnetic particle tests on each crankshaft using 2.6 for guidance. The accept or reject criteria shall be in accordance with Section 6 of 2.7.

3.7.5.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.5.1 to the SUPERVISOR.

3.7.5.3 Inspect each crankshaft for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.5.4 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.5.3 to the SUPERVISOR.

3.7.6 Inspect each connecting rod for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.6.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.6 to the SUPERVISOR.

3.7.7 Repair each blower using 2.2 for guidance.

3.7.7.1 Repair scratches, grooves, nicks, burrs and pits.

(I)(G) "BALANCE"

3.7.7.2 Accomplish the requirements of 009-15 of 2.1 for each rotating assembly.

3.7.7.3 Install new each gasket and threaded fastener.

3.7.7.4 Submit one legible copy, in hard copy or electronic media, of each final clearance reading using 2.2 through 2.6 for guidance to the SUPERVISOR.

3.7.8 Disassemble each lubricating oil cooler, using 2.2 for guidance.

3.7.8.1 Chemically and mechanically clean each lube oil cooler in accordance with Chapters 4, 5, and 18 of 2.4.

(I)(G) "HYDROSTATIC TEST"

3.7.8.2 Hydrostatically test each lube oil cooler at 75 PSIG in accordance with Section 4.4 of 2.2.

3.7.8.3 Repair 10 leaks in each lube oil cooler.

3.7.9 Assemble each lube oil cooler, fit and install new fasteners, gaskets, plugs, washers and lockwashers using 2.2 for guidance.

(I)(G) "HYDROSTATIC TEST"

3.7.9.1 Hydrostatically test each lube oil cooler using clean fresh water at 75 PSIG for a minimum of 10 minutes. Allowable leakage: None.

3.7.10 Disassemble each fresh water heat exchanger, using 2.2 for guidance.

3.7.10.1 Chemically and mechanically clean each fresh water heat exchanger in accordance with Chapters 4, 5, and 18 of 2.4.

(I)(G) "HYDROSTATIC TEST"

3.7.10.2 Hydrostatically test each fresh water heat exchanger using clean fresh water at 5 PSIG for a minimum of 10 minutes. Allowable leakage: None.

3.7.10.3 Repair 4 each leaking tubes by soldering both ends of the tube closed.

(I)(G) "HYDROSTATIC TEST"

3.7.10.4 Hydrostatically test each freshwater heat exchanger using clean fresh water at 5 PSIG for a minimum of 10 minutes. Allowable leakage: None.

(I)(G) "NEW PARTS"

3.7.11 Assemble each fresh water heat exchanger, fit and install new each fastener, gasket, seal and plug, using 2.2 and 2.5 for guidance.

3.7.12 Deliver each governor to a qualified governor repair facility.

3.7.12.1 Repair, set, adjust and calibrate each governor using 2.2 for guidance.

3.7.13 Repair each fuel oil pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.13.1 Fit and install new each fastener, gasket, seal, spring, pin bushing and plug using 2.2 and 2.5 for guidance.

3.7.14 Repair each lube oil pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.14.1 Fit and install new each gasket, seal, key, pin, washer and fastener.

3.7.15 Repair each fresh water pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.15.1 Assemble each fresh water pump, fit and install new each fastener, seal, gasket, slinger, O-ring and bearing using 2.2 and 2.5 for guidance.

(I)(G) "NEW PARTS"

3.8 Assemble each diesel engine and repaired engine component. Fit, and install new the following Original Equipment Manufacturer parts in each equipment listed in 1.3 using 2.2 and 2.5 for guidance:

TOTAL QUANTITY REQUIRED PER UNIT	NAME OF PART
One	Gasket Kit
One	Seal Crankshaft, Front
One	Slinger
One	Seal Crankshaft, Rear
10	Main Bearing Shell Set
4	Thrust Washer
8	Connect Rod Bearing
8	Shell Set
8	Piston Ring Set
8	Liner Cylinder
8	Insert Cylinder Liner
8	Camshaft Bearing
4	Thrust Washer
10	Bearing Set, Camshaft
One	Air Pressure Regulator
One	Oil Pressure Regulator

3.8.1 Fit and install new each fastener, plug, washer, lockwasher, seal, dowel, pin, key, retainer ring, spacer, spring, O-ring, clamp, shim, bushing, lube oil filter element, air filter element, and fuel oil filter element conforming to the Material List of 2.5.

3.8.1.1 Submit one legible copy, in hard copy or electronic media, of certification that each Fuel Injector Assembly meets manufacturer’s calibration and performance standards to the SUPERVISOR.

(I)(G) "HYDROSTATIC TEST"

3.9 Hydrostatically test each engine fresh water system using clean fresh water at 10 PSIG using clean fresh water for a minimum of 30 minutes. Allowable leakage: None.

3.10 Accomplish crankshaft pulley end play thrust measurements using 2.2 for guidance.

3.10.1 Submit one legible copy, in hard copy or electronic media, of the results of 3.10 to the SUPERVISOR.

3.11 Accomplish blower readings for each blower; rotor to end plate (gear end), rotor to end plate, leading edge of RH rotor to trailing edge of LH rotor, trailing edge of RH rotor to trailing edge of LH rotor and rotors to case inlet side.

3.11.1 Submit one legible copy, in hard copy or electronic media, of the results of 3.11 to the SUPERVISOR.

3.12 Fill each engine to the full mark with new lube oil conforming Mil-L-9000, symbol 9250.

(I)(G) "DYNAMOMETER TEST"

3.13 Accomplish Dynamometer Test for each engine listed in 1.3.1 using 2.2 for guidance.

3.13.1 Perform start up and Main Propulsion Run in Schedule using 2.8 for guidance.

3.13.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12 and 3.12.1.1 to the SUPERVISOR.

3.13.1.2 Securely attach a report with the following information in a waterproof envelope; command, manufacturer’s model number, manufacturer’s serial number, date of rebuild and date of delivery, size of piston and liner installed by cylinder and one each hard copy of required reports 3.10.1, 3.11.1 and 3.12.1.1.

3.14 Fill each engine to the full mark with new lube oil conforming to Mil-L-9000, symbol 9250.

3.15 Install new each cooling water, fuel and hydraulic hose using 2.2 and 2.9 for guidance.

3.16 Accomplish the requirements of 009-32 of 2.1 for each engine.

3.17 Deliver each engine disassembled in 3.2 via the SUPERVISOR.

SHIP: ASSAULT CRAFT UNIT ONE (ACU-1)

4. NOTES:

4.1 None

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	ASSAULT CRAFT UNIT ONE (ACU-1)	ITEM NO:	233-11-003
COAR:	28-081	PCN:	SSSD-0112
		CMP:	NONE
		PLANNER:	KELLY

1. SCOPE:

1.1 Title: 3-71 Ships Service Diesel Engine; overhaul

1.2 Location of Work:

1.2.1 Not Applicable

1.3 Identification:

1.3.1 Quantity (One), Diesel Engine, Model 3-71, Detroit Diesel Corporation.

2. REFERENCES:

2.1 Standard Items

2.2 Detroit Diesel Inline Series 71 Service Manual

2.3 S9AA0-AB-GOS-010/GSO, General Specifications for Overhaul of Surface Ships.

2.4 SUPSHIP San Diego Reference 276; Cleaning Procedures dated 18 April 1988

2.5 GM Diesel Parts Book for Inline Series 71 Engines

2.6 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.7 MIL-STD-2035; Non-Destructive Testing Acceptance Criteria

2.8 S9086-HB-STM-000/CH-233; NSTM, Diesel Engines

2.9 S6430-AE-TED-010, Technical Directive for Piping Devices, Flexible Hose Assemblies

3. REQUIREMENTS:

3.1 Pick up each equipment identified in 1.3.1.

3.1.1 Remove and dispose of fluids to accomplish requirements of this

work item.

3.2 Disassemble each equipment identified in 1.3.1, in accordance with 2.2.

3.2.1 Submit one legible copy, in hard copy or electronic media, within 48 hours after removal of equipment of a report listing missing parts including part number, price and, availability required for a class "B" overhaul of equipment identified in 1.3.1 to the SUPERVISOR using 2.2 for guidance.

3.3 Chemically and mechanically clean each part free of contamination, using 2.4 for guidance.

3.4 Inspect each part for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.5 Measure and record sizes and clearances of each wearing part and fit area, using 2.2 for guidance.

3.6 Submit one legible copy, in hard copy or electronic media of a report, listing results of the requirements of 3.4 and 3.5 to the SUPERVISOR.

3.7 Accomplish class "B" overhaul as defined in Paragraph 042c of 2.3 for each engine identified in paragraph 1.3.1 using 2.2 for guidance.

3.7.1 Machine cut and handwork each machined, sealing, aligning, mating and gasket surface, taking precaution to ensure no excessive material is removed causing loss of critical size or alignment.

3.7.2 Chase and tap exposed threaded areas.

3.7.3 Repair each cylinder block using 2.2 for guidance.

(I)(G) "PRESSURE TEST"

3.7.3.1 Pressure test each cylinder block at 40 PSIG, using 2.2 for guidance.

3.7.3.2 Hone each cylinder block bore using 2.2 for guidance.

3.7.3.3 Install each cylinder block end plate, fit and install new each gasket and fastener using 2.2 for guidance.

3.7.4 Repair each cylinder head using 2.2 for guidance.

(I)(G) "PRESSURE TEST"

3.7.4.1 Pressure Test each cylinder head at 40 PSIG using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.4.2 Remove existing install new each exhaust valve, spring and gasket using 2.2 and 2.5 for guidance.

3.7.4.3 Install new each threaded fastener, gasket, O-ring, oil seal, pipe plug, washer and fuel pipe.

3.7.5 Repair each crankshaft using 2.2 for guidance.

(I)(G) "MAGNETIC PARTICLE TEST "

3.7.5.1 Accomplish magnetic particle tests on each crankshaft using 2.6 for guidance. The accept or reject criteria shall be in accordance with Section 6 of 2.7.

3.7.5.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.5.1 to the SUPERVISOR.

3.7.5.3 Inspect each crankshaft for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.5.4 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.5.3 to the SUPERVISOR.

3.7.6 Inspect each connecting rod for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.6.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.6 to the SUPERVISOR.

3.7.7 Repair each blower using 2.2 for guidance.

3.7.7.1 Repair scratches, grooves, nicks, burrs and pits.

(I)(G) "BALANCE"

3.7.7.2 Accomplish the requirements of 009-15 of 2.1 for each rotating assembly.

3.7.7.3 Install new each gasket and threaded fastener.

3.7.7.4 Submit one legible copy, in hard copy or electronic media, of each final clearance reading using 2.2 for guidance to the SUPERVISOR.

3.7.8 Disassemble each lubricating oil cooler, using 2.2 for guidance.

3.7.8.1 Chemically and mechanically clean each lube oil cooler in accordance with Chapters 4, 5, and 18 of 2.4.

(I)(G) "HYDROSTATIC TEST"

3.7.8.2 Hydrostatically test each lube oil cooler at 75 PSIG in accordance with Section 4.4 of 2.2.

3.7.8.3 Repair 10 leaks in each lube oil cooler.

3.7.9 Assemble each lube oil cooler, fit and install new fasteners, gaskets, plugs, washers and lockwashers using 2.2 for guidance.

(I)(G) "HYDROSTATIC TEST"

3.7.9.1 Hydrostatically test each lube oil cooler using clean fresh water at 75 PSIG for a minimum of 10 minutes. Allowable leakage: None.

3.7.10 Disassemble each fresh water heat exchanger, using 2.2 for guidance.

3.7.10.1 Chemically and mechanically clean each fresh water heat exchanger in accordance with Chapters 4, 5, and 18 of 2.4.

(I)(G) "HYDROSTATIC TEST"

3.7.10.2 Hydrostatically test each fresh water heat exchanger using clean fresh water at 5 PSIG for a minimum of 10 minutes. Allowable leakage: None.

3.7.10.3 Repair 4 each leaking tubes by soldering both ends of the tube closed.

(I)(G) "HYDROSTATIC TEST"

3.7.10.4 Hydrostatically test each freshwater heat exchanger using clean fresh water at 5 PSIG for a minimum of 10 minutes. Allowable leakage: None.

(I)(G) "NEW PARTS"

3.7.11 Assemble each fresh water heat exchanger, fit and install new each fastener, gasket, seal and plug, using 2.2 and 2.5 for guidance.

3.7.12 Deliver each governor to a qualified governor repair facility.

3.7.12.1 Repair, set, adjust and calibrate each governor using 2.2 for guidance.

3.7.13 Repair each fuel oil pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.13.1 Fit and install new each fastener, gasket, seal, spring, pin bushing and plug using 2.2 and 2.5 for guidance.

3.7.14 Repair each lube oil pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.14.1 Fit and install new each gasket, seal, key, pin, washer and fastener.

3.7.15 Repair each fresh water pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.15.1 Assemble each fresh water pump, fit and install new each fastener, seal, gasket, slinger, O-ring and bearing using 2.2 and 2.5 for guidance.

(I)(G) "NEW PARTS"

3.8 Assemble each diesel engine and repaired engine component. Fit, and install new the following Original Equipment Manufacturer parts in each equipment listed in 1.3 using 2.2 and 2.5 for guidance:

TOTAL QUANTITY REQUIRED PER UNIT	NAME OF PART
One	Gasket Kit
One	Seal Crankshaft, Front
One	Slinger
One	Seal Crankshaft, Rear
4	Main Bearing Shell Set
3	Thrust Washer
3	Connect Rod Bearing
3	Shell Set
3	Piston Ring Set
3	Liner Cylinder
3	Insert Cylinder Liner
3	Camshaft Bearing
4	Thrust Washer
4	Bearing Set, Camshaft
One	Air Pressure Regulator
One	Oil Pressure Regulator

3.8.1 Fit and install new each fastener, plug, washer, lockwasher, seal, dowel, pin, key, retainer ring, spacer, spring, O-ring, clamp, shim, bushing, lube oil filter element, air filter element, and fuel oil filter element conforming to the Material List of 2.5.

3.8.1.1 Submit one legible copy, in hard copy or electronic media, of certification that each Fuel Injector Assembly meets manufacturer’s calibration and performance standards to the SUPERVISOR.

(I)(G) "HYDROSTATIC TEST"

3.9 Hydrostatically test each engine fresh water system using clean fresh water at 10 PSIG using clean fresh water for a minimum of 30 minutes. Allowable leakage: None.

3.10 Accomplish crankshaft pulley end play thrust measurements using 2.2 for guidance.

3.10.1 Submit one legible copy, in hard copy or electronic media, of the results of 3.10 to the SUPERVISOR.

3.11 Accomplish blower readings for each blower; rotor to end plate (gear end), rotor to end plate, leading edge of RH rotor to trailing edge of LH rotor, trailing edge of RH rotor to trailing edge of LH rotor and rotors to case inlet side.

3.11.1 Submit one legible copy, in hard copy or electronic media, of the results of 3.11 to the SUPERVISOR.

3.12 Fill each engine to the full mark with new lube oil conforming Mil-L-9000, symbol 9250.

(I)(G) "DYNAMOMETER TEST"

3.13 Accomplish Dynamometer Test for each engine listed in 1.3.1 using 2.2 for guidance.

3.13.1 Perform start up and Emergency Generator Run in Schedule using 2.8 for guidance.

3.13.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12 and 3.12.1.1 to the SUPERVISOR.

3.13.1.2 Securely attach a report with the following information in a waterproof envelope; command, manufacturer’s model number, manufacturer’s serial number, date of rebuild and date of delivery, size of piston and liner installed by cylinder and one each hard copy of required reports 3.10.1, 3.11.1 and 3.12.1.1.

3.14 Fill each engine to the full mark with new lube oil conforming to Mil-L-9000, symbol 9250.

3.15 Install new each cooling water, fuel and hydraulic hose using 2.2 and 2.9 for guidance.

3.16 Accomplish the requirements of 009-32 of 2.1 for each engine.

3.17 Deliver each engine disassembled in 3.2 via the SUPERVISOR.

SHIP: ASSAULT CRAFT UNIT ONE (ACU-1)

4. NOTES:

4.1 None

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.

SHIP:	ASSAULT CRAFT UNIT ONE (ACU-1)	ITEM NO:	233-11-004
COAR:	28-081	PCN:	SSSD-0111
		CMP:	NONE
		PLANNER:	KELLY

1. SCOPE:

1.1 Title: 4-71 Anchor Diesel Engine; overhaul

1.2 Location of Work:

1.2.1 Not Applicable

1.3 Identification:

1.3.1 Quantity (One), Diesel Engine, Model 4-71, Detroit Diesel Corporation.

2. REFERENCES:

2.1 Standard Items

2.2 Detroit Diesel Inline Series 71 Service Manual

2.3 S9AA0-AB-GOS-010/GSO, General Specifications for Overhaul of Surface Ships.

2.4 SUPSHIP San Diego Reference 276; Cleaning Procedures dated 18 April 1988

2.5 GM Diesel Parts Book for Inline Series 71 Engines

2.6 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.7 MIL-STD-2035; Non-Destructive Testing Acceptance Criteria

2.8 S9086-HB-STM-000/CH-233; NSTM, Diesel Engines

2.9 S6430-AE-TED-010, Technical Directive for Piping Devices, Flexible Hose Assemblies

3. REQUIREMENTS:

3.1 Pick up each equipment identified in 1.3.1.

3.1.1 Remove and dispose of fluids to accomplish requirements of this

work item.

3.2 Disassemble each equipment identified in 1.3.1, in accordance with 2.2.

3.2.1 Submit one legible copy, in hard copy or electronic media, within 48 hours after removal of equipment of a report listing missing parts including part number, price and, availability required for a class "B" overhaul of equipment identified in 1.3.1 to the SUPERVISOR using 2.2 for guidance.

3.3 Chemically and mechanically clean each part free of contamination, using 2.4 for guidance.

3.4 Inspect each part for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.5 Measure and record sizes and clearances of each wearing part and fit area, using 2.2 for guidance.

3.6 Submit one legible copy, in hard copy or electronic media of a report, listing results of the requirements of 3.4 and 3.5 to the SUPERVISOR.

3.7 Accomplish class "B" overhaul as defined in Paragraph 042c of 2.3 for each engine identified in paragraph 1.3.1 using 2.2 for guidance.

3.7.1 Machine cut and handwork each machined, sealing, aligning, mating and gasket surface, taking precaution to ensure no excessive material is removed causing loss of critical size or alignment.

3.7.2 Chase and tap exposed threaded areas.

3.7.3 Repair each cylinder block using 2.2 for guidance.

(I)(G) "PRESSURE TEST"

3.7.3.1 Pressure test each cylinder block at 40 PSIG, using 2.2 for guidance.

3.7.3.2 Hone each cylinder block bore using 2.2 for guidance.

3.7.3.3 Install each cylinder block end plate, fit and install new each gasket and fastener using 2.2 for guidance.

3.7.4 Repair each cylinder head using 2.2 for guidance.

(I)(G) "PRESSURE TEST"

3.7.4.1 Pressure Test each cylinder head at 40 PSIG using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.4.2 Remove existing install new each exhaust valve, spring and gasket using 2.2 and 2.5 for guidance.

3.7.4.3 Install new each threaded fastener, gasket, O-ring, oil seal, pipe plug, washer and fuel pipe.

3.7.5 Repair each crankshaft using 2.2 for guidance.

(I)(G) "MAGNETIC PARTICLE TEST "

3.7.5.1 Accomplish magnetic particle tests on each crankshaft using 2.6 for guidance. The accept or reject criteria shall be in accordance with Section 6 of 2.7.

3.7.5.2 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.5.1 to the SUPERVISOR.

3.7.5.3 Inspect each crankshaft for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.5.4 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.5.3 to the SUPERVISOR.

3.7.6 Inspect each connecting rod for wear and defects, using 2.2 as guidance for accept or reject criteria.

3.7.6.1 Submit one legible copy, in hard copy or electronic media of a report listing results of the requirements of 3.7.6 to the SUPERVISOR.

3.7.7 Repair each blower using 2.2 for guidance.

3.7.7.1 Repair scratches, grooves, nicks, burrs and pits.

(I)(G) "BALANCE"

3.7.7.2 Accomplish the requirements of 009-15 of 2.1 for each rotating assembly.

3.7.7.3 Install new each gasket and threaded fastener.

3.7.7.4 Submit one legible copy, in hard copy or electronic media, of each final clearance reading using 2.2 for guidance to the SUPERVISOR.

3.7.8 Disassemble each lubricating oil cooler, using 2.2 for guidance.

3.7.8.1 Chemically and mechanically clean each lube oil cooler in accordance with Chapters 4, 5, and 18 of 2.4.

(I)(G) "HYDROSTATIC TEST"

3.7.8.2 Hydrostatically test each lube oil cooler at 75 PSIG in accordance with Section 4.4 of 2.2.

3.7.8.3 Repair 10 leaks in each lube oil cooler.

3.7.9 Assemble each lube oil cooler, fit and install new fasteners, gaskets, plugs, washers and lockwashers using 2.2 for guidance.

(I)(G) "HYDROSTATIC TEST"

3.7.9.1 Hydrostatically test each lube oil cooler using clean fresh water at 75 PSIG for a minimum of 10 minutes. Allowable leakage: None.

3.7.10 Disassemble each fresh water heat exchanger, using 2.2 for guidance.

3.7.10.1 Chemically and mechanically clean each fresh water heat exchanger in accordance with Chapters 4, 5, and 18 of 2.4.

(I)(G) "HYDROSTATIC TEST"

3.7.10.2 Hydrostatically test each fresh water heat exchanger using clean fresh water at 5 PSIG for a minimum of 10 minutes. Allowable leakage: None.

3.7.10.3 Repair 4 each leaking tubes by soldering both ends of the tube closed.

(I)(G) "HYDROSTATIC TEST"

3.7.10.4 Hydrostatically test each freshwater heat exchanger using clean fresh water at 5 PSIG for a minimum of 10 minutes. Allowable leakage: None.

(I)(G) "NEW PARTS"

3.7.11 Assemble each fresh water heat exchanger, fit and install new each fastener, gasket, seal and plug, using 2.2 and 2.5 for guidance.

3.7.12 Deliver each governor to a qualified governor repair facility.

3.7.12.1 Repair, set, adjust and calibrate each governor using 2.2 for guidance.

3.7.13 Repair each fuel oil pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.13.1 Fit and install new each fastener, gasket, seal, spring, pin bushing and plug using 2.2 and 2.5 for guidance.

3.7.14 Repair each lube oil pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.14.1 Fit and install new each gasket, seal, key, pin, washer and fastener.

3.7.15 Repair each fresh water pump using 2.2 for guidance.

(I)(G) "NEW PARTS"

3.7.15.1 Assemble each fresh water pump, fit and install new each fastener, seal, gasket, slinger, O-ring and bearing using 2.2 and 2.5 for guidance.

(I)(G) "NEW PARTS"

3.8 Assemble each diesel engine and repaired engine component. Fit, and install new the following Original Equipment Manufacturer parts in each equipment listed in 1.3 using 2.2 and 2.5 for guidance:

TOTAL QUANTITY REQUIRED PER UNIT	NAME OF PART
One	Gasket Kit
One	Seal Crankshaft, Front
One	Slinger
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4	Connect Rod Bearing
4	Shell Set
4	Piston Ring Set
4	Liner Cylinder
4	Insert Cylinder Liner
4	Camshaft Bearing
4	Thrust Washer
6	Bearing Set, Camshaft
One	Air Pressure Regulator
One	Oil Pressure Regulator

3.8.1 Fit and install new each fastener, plug, washer, lockwasher, seal, dowel, pin, key, retainer ring, spacer, spring, O-ring, clamp, shim, bushing, lube oil filter element, air filter element, and fuel oil filter element conforming to the Material List of 2.5.

3.8.1.1 Submit one legible copy, in hard copy or electronic media, of certification that each Fuel Injector Assembly meets manufacturer’s calibration and performance standards to the SUPERVISOR.

(I)(G) "HYDROSTATIC TEST"

3.9 Hydrostatically test each engine fresh water system using clean fresh water at 10 PSIG using clean fresh water for a minimum of 30 minutes. Allowable leakage: None.

3.10 Accomplish crankshaft pulley end play thrust measurements using 2.2 for guidance.

3.10.1 Submit one legible copy, in hard copy or electronic media, of the results of 3.10 to the SUPERVISOR.

3.11 Accomplish blower readings for each blower; rotor to end plate (gear end), rotor to end plate, leading edge of RH rotor to trailing edge of LH rotor, trailing edge of RH rotor to trailing edge of LH rotor and rotors to case inlet side.

3.11.1 Submit one legible copy, in hard copy or electronic media, of the results of 3.11 to the SUPERVISOR.

3.12 Fill each engine to the full mark with new lube oil conforming Mil-L-9000, symbol 9250.

(I)(G) "DYNAMOMETER TEST"

3.13 Accomplish Dynamometer Test for each engine listed in 1.3.1 using 2.2 for guidance.

3.13.1 Perform start up and Emergency Generator Run in Schedule using 2.8 for guidance.

3.13.1.1 Submit one legible copy, in hard copy or electronic media, of a report listing results of the requirements of 3.12 and 3.12.1.1 to the SUPERVISOR.

3.13.1.2 Securely attach a report with the following information in a waterproof envelope; command, manufacturer’s model number, manufacturer’s serial number, date of rebuild and date of delivery, size of piston and liner installed by cylinder and one each hard copy of required reports 3.10.1, 3.11.1 and 3.12.1.1.

3.14 Fill each engine to the full mark with new lube oil conforming to Mil-L-9000, symbol 9250.

3.15 Install new each cooling water, fuel and hydraulic hose using 2.2 and 2.9 for guidance.

3.16 Accomplish the requirements of 009-32 of 2.1 for each engine.

3.17 Deliver each engine disassembled in 3.2 via the SUPERVISOR.

SHIP: ASSAULT CRAFT UNIT ONE (ACU-1)

4. NOTES:

4.1 None

5. GOVERNMENT FURNISHED MATERIAL (GFM):

5.1 LLTM:

1. None.

5.2 PUSH MATERIAL:

1. None.

5.3 KITTED MATERIAL:

1. None.